

WHAT IS CLAIMED IS:

1. A method for producing a scale provided coaxially with a conveying roller and adapted to detect conveyance rotation angle, the method comprising the  
5 steps of:

holding a recording medium conveyance outer peripheral portion of the conveying roller, and

effecting rotation angle allotment for recording medium conveyance on the conveying roller to thereby  
10 form a scale for detecting conveyance rotation angle.

2. A method according to Claim 1, wherein the scale is a magnetic scale in which conveyance rotation angle allotment is effected magnetically.

15

3. A method for producing a scale for detecting conveyance rotation angle of a conveying roller provided in a recording apparatus adapted to perform recording on a recording medium conveyed while being  
20 held between the conveying roller and a driven roller by using a recording means, the method comprising the steps of:

holding a recording medium conveyance outer peripheral portion of the conveying roller, and

25 effecting rotation angle allotment for recording medium conveyance on the conveying roller to thereby form a scale for detecting conveyance rotation angle.

09885043.062104  
TOP290 ET098850

5            5. A method according to Claim 3 or 4, wherein  
the recording apparatus is an ink-jet recording  
apparatus for forming an image on the recording medium  
by discharging ink.

15           7. A method according to Claim 3 or 4, wherein,  
in the recording apparatus, a detecting device for  
detecting angle information provided on the scale is  
provided so as to be of the same phase as the driven  
roller with respect to the axis of the conveyance outer  
20 peripheral portion of the conveying roller.

9. A method according to Claim 8, wherein the

recording apparatus is an ink-jet recording apparatus provided with an electrothermal converter for generating energy for discharging ink.

5           10. A method according to Claim 3 or 4, wherein,  
in the recording apparatus, a detecting device for  
detecting angle information provided on the scale is  
provided so as to be of the same phase as the driven  
roller with respect to the axis of the conveyance outer  
10       peripheral portion of the conveying roller and as to be  
situated at a fixed distance from the recording means  
with respect to the recording medium conveying  
direction.

15           11. A method according to Claim 10, wherein the  
recording apparatus is an ink-jet recording apparatus  
which forms an image on the recording medium by  
discharging ink onto it.

20           12. A method according to Claim 11, wherein the  
recording apparatus is an ink-jet recording apparatus  
provided with an electrothermal converter for  
generating energy for discharging ink.

25           13. A method for producing a scale provided  
coaxially and integrally with a conveying roller and  
adapted to detect conveyance rotation angle, the method

09885013.002404  
FOI 2009-01058860

comprising the steps of:

integrating the conveying roller with a conveyance angle detection pattern writing member coaxially mounted with the conveying roller; and

5 holding a recording medium conveyance outer peripheral portion of the conveyance roller integrated with the conveyance angle detection pattern writing member, and performing rotation angle allotment on the conveying roller to form a scale for detecting  
10 conveyance rotation angle.

14. A method according to Claim 13, wherein the scale is a magnetic scale formed by magnetically effecting conveyance rotation angle allotment.

15 15. A method according to Claim 13 or 14, wherein the writing member is integrally provided with a conveying roller drive transmitting means.

20 16. A method for producing a scale for detecting conveyance rotation angle of a conveying roller provided in a recording apparatus adapted to perform recording on a recording medium conveyed while being held between the conveying roller and a driven roller  
25 by using a recording means, the method comprising the steps of:

integrating the conveying roller with a conveyance

09885043.062101  
FOR290 ET02880

angle detection pattern writing member coaxially  
mounted with the conveying roller; and

holding a recording medium conveyance outer  
peripheral portion of the conveyance roller integrated  
5 with the conveyance angle detection pattern writing  
member, and performing rotation angle allotment on the  
conveying roller to form a scale for detecting  
conveyance rotation angle.

10 17. A method according to Claim 16, wherein the  
scale is a magnetic scale formed by magnetically  
performing conveyance angle allotment.

15 18. A method according to Claim 16 or 17, wherein  
the recording apparatus is an ink-jet recording  
apparatus which forms an image on the recording medium  
by discharging ink onto it.

20 19. A method according to Claim 18, wherein the  
recording apparatus is an ink-jet recording apparatus  
provided with an electrothermal converter for  
generating energy for discharging ink.

25 20. A method according to Claim 16 or 17, wherein  
the writing member is integrally provided with a  
conveying roller drive transmitting means.

098504 062404  
FOF90 EFO860

21. A method according to Claim 20, wherein the recording apparatus is an ink-jet recording apparatus which forms an image on the recording medium by discharging ink onto it.

5

22. A method according to Claim 21, wherein the recording apparatus is an ink-jet recording apparatus provided with an electrothermal converter for generating energy for discharging ink.

10

23. A method according to Claim 16 or 17, wherein, in the recording apparatus, a detecting device for detecting angle information provided on the scale is provided so as to be of the same phase as the driven roller with respect to the axis of the conveyance outer peripheral portion of the conveying roller.

15

24. A method according to Claim 23, wherein the recording apparatus is an ink-jet recording apparatus which forms an image on the recording medium by discharging ink onto it.

20

25. A method according to Claim 24, wherein the recording apparatus is an ink-jet recording apparatus provided with an electrothermal converter which generates energy for discharging ink.

25

09885013.062104  
TOTAL 4 PAGES

26. A method according to Claim 16 or 17,  
wherein, in the recording apparatus, a detecting device  
for detecting angle information provided on the scale  
is elastically biased against the scale and arranged so  
5 as to be at a fixed distance from the recording means  
with respect to the recording medium conveying  
direction.

27. A method according to Claim 26, wherein the  
10 recording apparatus is an ink-jet recording apparatus  
which forms an image on the recording medium by  
discharging ink onto it.

28. A method according to Claim 27, wherein the  
15 recording apparatus is an ink-jet recording apparatus  
provided with an electrothermal converter which  
generates energy for discharging ink.

29. A recording apparatus comprising:  
20 conveying means having a conveying roller  
manufactured by a method as defined in claim 1 and a  
pinch roller in a close contact with said conveying  
roller; and  
detecting means for detecting a rotational angle  
25 of said conveying means,

wherein a recording medium conveyed by said  
conveying means is recorded by recording means.

0033013 062101  
T01280 E103860

30. A recording apparatus according to claim 29,  
wherein said detecting means is biased to a magnetic  
scale of said conveying means to maintain a distance to  
said recording means constant in a recording medium  
5 conveying direction.

31. A recording apparatus according to claim 30,  
wherein said recording apparatus is an ink jet  
recording apparatus for discharging ink on the  
10 recording medium to form an image.

32. A recording apparatus according to claim 31,  
wherein said recording apparatus is an ink jet  
recording apparatus having an electrothermal converting  
15 member for generating energy utilized to discharge ink.

33. A recording apparatus comprising:  
conveying means having a conveying roller  
manufactured by a method as defined in claim 3 and a  
20 pinch roller in a close contact with said conveying  
roller; and

detecting means for detecting a rotational angle  
of said conveying means,  
wherein a recording medium conveyed by said  
25 conveying means is recorded by recording means.

34. A recording apparatus according to claim 33,



wherein said detecting means is biased to a magnetic scale of said conveying means to maintain a distance to said recording means constant in a recording medium conveying direction.

5

35. A recording apparatus according to claim 33, wherein said recording apparatus is an ink jet recording apparatus for discharging ink on the recording medium to form an image.

10

36. A recording apparatus according to claim 35, wherein said recording apparatus is an ink jet recording apparatus having an electrothermal converting member for generating energy utilized to discharge ink.

15

37. A recording apparatus comprising:

conveying means having a conveying roller manufactured by a method as defined in claim 13 and a pinch roller in a close contact with said conveying roller; and

20

detecting means for detecting a rotational angle of said conveying means,

wherein a recording medium conveyed by said conveying means is recorded by recording means.

25

38. A recording apparatus according to claim 37, wherein said detecting means is biased to a magnetic

09885017 032404  
101250 E1058550

scale of said conveying means to maintain a distance to said recording means constant in a recording medium conveying direction.

5           39. A recording apparatus according to claim 38, wherein said recording apparatus is an ink jet recording apparatus for discharging ink on the recording medium to form an image.

10           40. A recording apparatus according to claim 39, wherein said recording apparatus is an ink jet recording apparatus having an electrothermal converting member for generating energy utilized to discharge ink.

15           41. A recording apparatus comprising:  
conveying means having a conveying roller manufactured by a method as defined in claim 16 and a pinch roller in a close contact with said conveying roller; and

20           detecting means for detecting a rotational angle of said conveying means,

wherein a recording medium conveyed by said conveying means is recorded by recording means.

25           42. A recording apparatus according to claim 41, wherein said detecting means is biased to a magnetic scale of said conveying means to maintain a distance to

43. A recording apparatus according to claim 42,  
5 wherein said recording apparatus is an ink jet  
recording apparatus for discharging ink on the  
recording medium to form an image.

44. A recording apparatus according to claim 43,  
10 wherein said recording apparatus is an ink jet  
recording apparatus having an electrothermal converting  
member for generating energy utilized to discharge ink.